26

LIGATURE OF THE SPERMATIC CORD IN THE TREATMENT OF HYPERTROPHY OF THE PROSTATE GLAND.

BY

J. EWING MEARS, M.D.,

PHILADELPHIA.

Read before the Philadelphia Academy of Surgery, November 5, 1894.

LIGATURE OF THE SPERMATIC CORD IN THE TREATMENT OF HYPERTROPHY OF THE PROSTATE GLAND.

By J. EWING MEARS, M.D.

In the male subject the function of the generative apparatus involves the secretion of semen, and, under certain conditions, its ejaculation. The former is accomplished in the testes, and the latter by the vasa deferentia, the vesiculæ seminales, the prostate, the urethra and penis.

In order to explain certain forms of hypertrophic changes occurring in the prostate gland, I think it necessary to consider the anatomical structure of the ejaculatory apparatus. Portions of this are tubal in character, forming ducts or canals, as the vasa deferentia and urethra; the vesiculæ seminales are composite organs, not mere receptacles for the accumulation of semen, but possessing secretory power; the prostate is more of a muscular than a glandular organ. As determined by the investigations of Kölliker, the glandular substance does not constitute more than one-third or a half of the whole mass; the vasa deferentia, according to the same author, are endowed with a colossal muscular apparatus, and are stated to be chiefly operative in ejaculation. The seminal vesicles and ejaculatory ducts exhibit the same muscular structure as the vasa deferentia. All parts of the ejaculatory apparatus possess what is essential to their functions—a redundance of muscular fibres. I refer to these well-known anatomical facts in order that they may be considered in connection with certain forms of prostatic hypertrophy.

Enlargement of the prostate may be due to inflammation—acute or chronic—sometimes eventuating in abscess; cystic degeneration, which is rare; tuberculosis; myomatous growths; carcinoma; simple hypertrophy. Cystic, tubercular, and carcinomatous affections of the prostate may be eliminated from consideration on this occasion as being without the circle of conditions possible to be relieved or in any way affected by the plan of treatment to be discussed. The remaining affections clinical observations have, I think, satisfactorily determined as

enjoying intimate relations with the functional activity of the secretive organs of the generative apparatus, and therefore affected by any conditions which control this.

An organ in a state of inflammation requires, in order that it may return to a normal condition, a cessation, so far as it is possible, of its function; if this is not accomplished the inflammatory action progresses, with the resultant effects of plastic deposit, increase in size, the course of the inflammatory action terminating in this stage, or possibly continuing to the suppurative stage.

In myomatous growths of the uterus clinical observation records the fact that in married women, or in single women in whom the sexual activity of the generative organs is maintained, these develop more rapidly and attain a larger size than in the unmarried female or in the single female who does not indulge in sexual congress.

Clinical investigation has also determined the fact that simple hypernutrition is the result in many instances of over-stimulation; of inordinate functional activity. In this manner it is possible to account for simple hypertrophy of the prostate, that condition which more than any other is responsible for the serious secondary conditions manifested in the urinary apparatus. With this condition the surgeon has to deal oftener than with any other form of hypertrophy occurring in the gland. Examination of specimens of prostate glands affected with simple hypertrophy shows, according to Billroth, that there is no increase in the glandular elements, but simply expansion of the acini and epithelium hyperplasia. The frequently observed enlargements of the gland depend essentially on diffuse myoma.

The question as to the occurrence of hypertrophic changes in the prostate gland, at a period of life when on all other glands and tissues of the body the law of atrophy assumes sway, has often been asked, but never satisfactorily answered. May the answer not be found in its anatomical structure and in its anatomical and physiological relations. In structure and function it is composite. The arrangement of its muscular fibres would seem to indicate that their duty was more than that which relates to the function of the glandular portion of the organ—more than the simple expulsion of the secretion of the gland into the general ejaculatory canal. Placed near the culmination of the forces concerned in the expulsion of the spermatic fluid, its function would appear to be that of a reinforcing agent—of giving increased propulsive movement to the column of fluid which, it may be comes only from the seminal vesicles or from both vasa deferentia and seminal vesicles. Is the hypertrophy, therefore, conservative in character, occurring at a period of life when

nerve power declines and the other muscular portions of the ejaculatory apparatus yield to the law of atrophy?

It is my observation that the form of hypertrophy under discussion occurs in those who have over-indulged the sexual appetite—who have kept the generative organs in a prolonged state of excitement with, in many instances, incomplete acts, or without acts of coition, these conditions resulting in over-stimulation of the gland.

Coming now to the plan of treatment suggested in the title of this brief paper, it would appear to be both philosophic and physiologic, as an effort has been made to show that the pathologic condition present is directly associated with the functional activity of the generative apparatus. Obliterate this, and all organs associated in the production of this function will be affected. Without the organs for secretion of semen the ejaculatory apparatus has no function

The eminent Rokitansky long since observed that the prostate is generally found to be small when the organs of generation are in imperfect condition, and a diminution of the prostate with relaxation of the glandular tissue has been observed as accompanying atrophy of the testes.

To obliterate the function of the generative apparatus is therefore a rational method of treatment in prostatic hypertrophy of the forms above mentioned. How can this be accomplished? Dr. J. William White, in an elaborate paper on "Surgery of the Hypertrophied Prostate," read before the meeting of the American Surgical Association, in 1893, referred to the operation of castration as a therapeutic measure in hypertrophy of the prostate, and reported a number of experiments which were conducted on dogs, showing that removal of the testes in these animals was followed by prostatic atrophy. Without doubt castration would prove effectual in the production of atrophy, and the reports of cases have appeared in recent current surgical literature in which very positive relief was afforded by the operation. It is an operation, however, to which patients will naturally refuse to submit unless in the very last stages of disease of the bladder resulting from prostatic obstruction.

In the discussion which followed the reading of Dr. White's paper I suggested the ligature of the vas deferens as an operation which would probably be as efficacious as castration, and one which I believed would be more readily accepted by patients. I have seen the report of one case in which this operation has been performed since that date with a successful result.

Within the last year I have taken occasion to examine patients on whom I had performed subcutaneous ligature of the vessels of the cord for varicocele, and I have observed more or less

atrophy of the testes in these cases. In all the vas deferens was not excluded in the ligature. One patient, aged at the time of the operation eighteen years, reported that subsequent to the operation noctural emissions, from which he had suffered greatly, disappeared, showing, I think, the relief afforded to prostatic irritation by the operation.

Inclusion of the vas deferens in the ligature applied to the vessels of the spermatic cord would effectually, I believe, produce atrophy of the testes, and the operation is not increased in gravity. It might be advisable to apply the ligatures at intervals of time.

The gradual disappearance of the sexual function would not disturb the mental condition of the patient, as many realize it from other causes, and the consolation he would derive from the presence of the testicles, with relief from suffering, would, I believe, fully compensate. In all cases the patient should be informed of the character of the operation, and what is intended to be accomplished by it. With him should rest the decision. I regard it as the duty of the surgeon, however, to urge very earnestly the performance of any operation which will be efficacious in terminating the sufferings, sometimes horrible as they are, of patients suffering from the results of prostatic obstruction.

DISCUSSION.

Dr. Charles B. Penrose: During the last eighteen months ligature of the uterine arteries has been used to replace oöphorectomy for small fibroid tumors of the uterus. The result of ligature of both uterine arteries seems to show as quick and permanent atrophy of the tumor as follows removal of both ovaries. The subject is, however, still too recent to enable us to come to any definite conclusion. A good many cases, even in the hands of enthusiastic advocates of castration for fibroid tumors, fail to be benefited. Tait, I think, admits five to six per cent. of failures.

Dr. Mears, I think, said that fibroid tumors were more common in married than in single women. I think, however, that Dr. Emmet and Dr. Goodell make the opposite statement, and attribute the growth of fibroids to the congestion due to ungratified sexual desire and to uninterrupted menstruation.

Dr. Orville Horwitz: I have so far had no practical experience with this operation, but next week I expect to operate on two cases. If the cord were ligated completely I think it would be wiser to tie it above and below, and divide it as is done for the radical cure of varicocele. It is claimed that the open opera-

tion is the safer one, because if more than two-thirds of the veins are tied at one time atrophy of the testicle is apt to occur. I have seen one or two cases where marked atrophy of the testicle followed the subcutaneous ligature of the veins.

Another point to be considered in the ligature of the entire cord is as regards the blood-supply of the testicle. Dr. Mears thinks that the attachments of the testicle would be sufficient to nourish it. I am strongly inclined to try this operation, but I should prefer to employ it first on one of the lower animals to see if gangrene of the testicle will follow.

Dr. Mears: My paper was largely suggestive. I think it would be very desirable if we could obtain an operation as free from danger as ligature or section of the cord, and which would give positive relief in the cases of prostatic hypertrophy alluded to in the paper. Extirpation is an operation to which patients will not readily submit. I think if we can leave the testicles in position a great point will be gained. It is absence of the testicles which disturbs the feelings of the patient. If the sexual function gradually disappears it will not excite the same mental disturbance.

I am familiar with the views of Dr. Emmet and Dr. Goodell with reference to the occurrence of fibroid tumors in unmarried females. My statement did not relate to the cause of fibroid tumors, but to the manner in which they, being present, were affected in unmarried females. In my own practice I have observed cases where the tumors greatly increased in size in married women, and in unmarried women where there was reason to believe they indulged the sexual appetite.